	Application No.	Applicant(s)
Notice of Allowability	09/752,541	BOYD ET AL.
	Examiner	Art Unit	
	Tuan A. Vu	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Applicant's response filed 3/21/07*.

2. ☒ The allowed claim(s) is/are <u>5-11, 23-28, 38-43 (renum 1-19)</u>.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date <u>9/15/06</u>

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☒ Interview Summary (PTO-413), Paper No./Mail Date <u>5/20/07</u> .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

DETAILED ACTION

1. .   Claims 5-11, 23-28, 38-43 are pending in the office action as per the Applicant's

response filed 3/21/07.

EXAMINER'S AMENDMENT

2.   An examiner's amendment to the record appears below. Should the changes and/or

additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR

1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the

payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with

Robert O'Rourke, Reg# 46972 on 5/23/07.

3.   The application has been amended as follows:

The **Claims** have been amended in accordance with the herein attached copy of the

Amendment faxed by Applicant, and entitled: 'Amendment', dated 5/23/07.

EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE

4.   Claims 5-11, 23-28, 38-43 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art taken separately or jointly does not suggest or teach the following features.

A computer-implemented method for parsing a mathematical optimization problem, the

method comprising:

(i) reading from a source file a plurality of algebraic expressions that represent a

mathematical problem; and (ii) converting the plurality of algebraic expressions into a set of

signomial expressions; wherein at least one of said signomial expressions having a constraint

with a negative coefficient value and an optimization variable with a exponent value that is real

and not one; (iii) converting said set of signomial expressions to a compact numeric format to be

accepted by a computer-aided signomial program problem solver and storing said compacted

expressions onto a readable medium for use by said solver; as recited in **claim 1**;

OR

A readable medium embedding the method instructions for preparing input expressions

for a geometric program problem solver, including: reading as in (i); (iv) converting each of the

plurality of algebraic expressions representing a geometric program into a signomial expression,

the signomial expression having the constraints as in (ii), by converting terms of said signomial

expression into a signomial function; and (v) reducing said signomial expression to a

posynomial objective, a posynomial inequality, or a monomial equality, and storing the result of

said converting steps into a readable medium for use by said geometric program problem solver;

as recited in **claims 23 and 38**.

Bricker, 'Signomial Geometric Programming', discloses formulating of a model

construct of a signomial expression in Geometric Problem model; and in regard to each

signomial expression, teaches about a negative coefficient but does not explicitly teach or

suggest an optimization variable with a exponent value that is real and not one-- as recited in (ii)

or in (iv); and is further silent about the converting step to obtain a converted format to be input

to a computer-aided geometric/signomial program problem solver, as recited in claims 1, 23, and 38.

Shao-Pu, 'sdpsol: A Parser/Solver for Semidefinite Programs with Matrix Structure', teaches a parser and input for a solver, with formulating of complex geometric problems, circuit design representations in a semi-definite mathematical expressions using a Matrix approach in a Max-Det (Determinant Maximization) implementation to solve inequalities problems; but fails to teach or suggest converting mathematical/geometric expressions into signomial expressions as input for a geometric/signomial program problem solver, the signomial expressions having the constraints as recited in (ii) or (iv) from above.

Hershenson, USPN: 6,311,145, discloses geometric programs with posynomial functions; but fails to teach or suggest the constraints for the coefficient and variable exponent as set forth in (ii) or (iv).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (272) 272-3735. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.
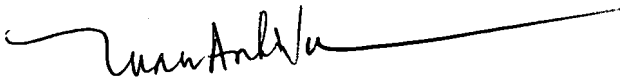
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571)272-3756.

The fax phone number for the organization where this application or proceeding is

assigned is (571) 273-3735 (for non-official correspondence - please consult Examiner before

using) or 571-273-8300 (for official correspondence) or redirected to customer service at 571-

272-3609.

Any inquiry of a general nature or relating to the status of this application should be

directed to the TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application

Information Retrieval (PAIR) system. Status information for published applications may be

obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan A Vu
Patent Examiner,
Art Unit 2193
May 21, 2007